SPRINT PLANNING & FUNCTION POINT CALCULATION

COMPLEXITY ADJUSTMENT FACTOR

Sr.No	Complexity Factor	Value/Influence
1	Backup and Recovery	**2**
2	Data Communication	**1**
3	Distributed Processing Functions	**1**
4	Is Performance Critical?	**2**
5	Existing Operating Environment	**1**
6	On-line Data Entry	**2**
7	Input Transaction Built Over Multiple Screens	**1**
8	Master Files Updated On-line	**2**
9	Complexity of Inputs, Outputs, Files, Inquiries	**3**
10	Complexity of Processing	**2**
11	Code Design for Reuse	**1**
12	Are Conversion/Installation Included in Design?	**1**
13	Multiple Installations	**0**
14	Application Designed to Facilitate Change by the User	**2**
$\sum$Fi =		**21**

Complexity Adjustment Factor = 0.65 + 0.01*(∑**Fi)**
= 0.65 + 0.01*(21)
= 0.65 + 0.21
= **0.86**

So, we get our Complexity Adjustment Factor (**CAF**) **= 0.86**

SPRINT PLANNING

Based upon the Use-Case Model and the Product Backlog, we have decided to divide the entire workflow into 5 major sprints, which are described briefly below:

Sprint	**Main Features/Deliverables**
Sprint 1	Set up a working environment, UI/UX, Login/Sign-Up
Sprint 2	Booking and Reservation, Parking Instructions
Sprint 3	Entry and Exit Management, Notifications (Email/OTP inclusion)
Sprint 4	Accessibility features for disabled people, Slot extension and Payment Integration
Sprint 5	Dashboard for Owners, Security Monitoring

We will now, cover each of the 5 sprints in details, providing function points estimates for them along the way

Sprint 1: Setting up the Working Environment, Login/Sign Up + UI/UX

- **Objectives:**
  - Set up a development environment, repositories, and necessary tools.
  - Implement the login/sign-up functionality with secure authentication (password, OTP, etc.).
  - Design and develop the initial UI/UX, ensuring user-friendly and responsive design.
- **User Stories Covered:**
  - Story 1 : Secure Login and Authentication (Parking Lot Users)
- **Deliverables:**
  - Functional login and sign-up forms.
  - Fully designed UI for login, home screen, and navigation.

Calculating Function Point for Sprint 1 :

Parmeter	**Value**	**Weight**	**Weighted Value**
External Input (EI)	2	3	6
External Output (EO)	1	4	4
External Query(EQ)	1	3	3
Internal Logic Files(ILF)	1	7	7
External Interface Files(EIF)	2	5	10
Unadjusted Function Points (∑**Weighted Values)** =			30
Adjusted Function Point (**UFP*CAF**) =			25.8
Total Hours (**Assuming 4 hours per FP**)			103.2

Estimated Time for the Sprint (**Assuming 1.5 hours per head per day**) :

Total Work in terms of hours covered in a day = 13.5 hours
Total days needed to complete Sprint = 7.644 days

Estimated Time in Weeks = 1.1 Weeks

Sprint 2: Booking and Reservation, Parking Instructions

- **Objectives:**
  - Develop functionality for users to reserve or book parking slots.
  - Provide clear parking instructions to users upon booking.
- **User Stories Covered:**
  - Story 2: Reserve/Book a Slot (Parking Lot Users)
  - Story 3: Parking Slot Entry Reminder (Parking Lot Users)
  - Story 6: End Parking Slot/ Checkout early (Parking Lot Users)
- **Deliverables:**
  - Booking flow for selecting, confirming, and reserving slots.
  - Email/SMS integration for booking confirmation and reminders.

Calculating Function Point for Sprint 2 :

Parmeter	**Value**	**Weight**	**Weighted Value**
External Input (EI)	3	4	12
External Output (EO)	2	4	8
External Query(EQ)	1	3	3
Internal Logic Files(ILF)	2	7	14
External Interface Files(EIF)	1	5	5
Unadjusted Function Points (∑**Weighted Values)** =			42
Adjusted Function Point (**UFP*CAF**) =			36.12
Total Hours (**Assuming 4 hours per FP**)			144.48

Estimated Time for the Sprint (**Assuming 1.5 hours per head per day**) :

Total Work in terms of hours covered in a day = 13.5 hours
Total days needed to complete Sprint = 10.70 days

Estimated Time in Weeks = 1.52 Weeks

Sprint 3: Entry/Exit Management, Notifications, Email, OTP

- **Objectives:**
  - Implement entry and exit tracking for parking.
  - Add notification features for user actions (entry/exit, booking reminders).
  - Implement OTP validation for security personnel and user authentication.
- **User Stories:**
  - Story 4: Entrance and Exit (Parking Lot Users)
  - Story 14: Verify User Actions (Security Personnel)
- **Deliverables:**
  - Functional entry/exit tracking.
  - Notification system for reminders and updates.
  - OTP integration for secure validation.

Calculating Function Point for Sprint 3 :

Parmeter	Value	Weight	Weighted Value
External Input (EI)	3	3	9
External Output (EO)	2	4	8
External Query(EQ)	1	3	3
Internal Logic Files(ILF)	1	7	7
External Interface Files(EIF)	2	5	10
Unadjusted Function Points (∑**Weighted Values)** =			37
Adjusted Function Point (**UFP*CAF**) =			31.82
Total Hours (**Assuming 4 hours per FP**)			127.28

Estimated Time for the Sprint (**Assuming 1.5 hours per head per day**) :

Total Work in terms of hours covered in a day = 13.5 hours
Total days needed to complete Sprint = 9.42 days

Estimated Time in Weeks = 1.34 Weeks

Sprint 4: Disabled Accessibility Features, Slot Extension, Payment Integration

- **Objectives:**
  - Implement accessibility features for disabled users.
  - Allow users to extend parking slot timing if necessary.
  - Integrate payment gateway for booking and exit payments.
- **User Stories Covered:**
  - Story 5: Extend Slot Timing (Parking Lot Users)
  - Story 7: Payment (Parking Lot Users)
  - Story 8: Transaction Failure Handling (Parking Lot Users)
  - Story 9: Accessible Parking for Disabled Users (Parking Lot Users)
- **Deliverables:**
  - Slot extension feature with real-time availability check.
  - Payment system integration with multiple payment options (credit card, digital wallet).
  - Handling of failed transactions and retry mechanisms.

Calculating Function Point for Sprint 4 :

Parmeter	**Value**	**Weight**	**Weighted Value**
External Input (EI)	2	4	8
External Output (EO)	3	4	12
External Query(EQ)	2	3	6
Internal Logic Files(ILF)	2	7	14
External Interface Files(EIF)	1	5	5
Unadjusted Function Points (∑**Weighted Values)** =			45
Adjusted Function Point (**UFP*CAF**) =			38.7
Total Hours (**Assuming 4 hours per FP**)			154.8

Estimated Time for the Sprint (**Assuming 1.5 hours per head per day**) :

Total Work in terms of hours covered in a day = 13.5 hours
Total days needed to complete Sprint = 11.46 days

Estimated Time in Weeks = 1.63 Weeks

Sprint 5: Dashboard for Owners, Security Monitoring

- **Objectives:**
  - Build a dashboard for parking lot owners to monitor operations, view reports, and revenue.
  - Provide security personnel with a monitoring interface for parking operations and user actions.
- **User Stories:**
  - Story 10: Manage Employee Information (Parking Lot Owners)
  - Story 11: View Dashboard (Parking Lot Owners)
  - Story 12: See total revenue (Parking Lot Owners)
  - Story 13: Change Parking Rates (Parking Lot Owners)
  - Story 15: Assist with Transaction Failure Handling (Security Personnel)
- **Deliverables:**
  - Owner's dashboard with real-time monitoring.
  - Employee management interface for owners.
  - Security monitoring tools for personnel with alerts for any issues.

Calculating Function Point for Sprint 5 :

Parmeter	**Value**	**Weight**	**Weighted Value**
External Input (EI)	2	3	6
External Output (EO)	2	4	8
External Query(EQ)	1	3	3
Internal Logic Files(ILF)	2	7	14
External Interface Files(EIF)	2	5	10
Unadjusted Function Points (∑**Weighted Values)** =			41
Adjusted Function Point (**UFP*CAF**) =			35.26
Total Hours (**Assuming 4 hours per FP**)			141.04

Estimated Time for the Sprint (**Assuming 1.5 hours per head per day**) :

Total Work in terms of hours covered in a day = 13.5 hours
Total days needed to complete Sprint = 10.44 days
Estimated Time in Weeks = 1.5 Weeks

Estimated Time taken to complete the product/ develop a potentially deliverable product:

Sprint	Time(in Hours)	Time(in Weeks)
Sprint 1	103.2	1.1
Sprint 2	144.48	1.52
Sprint 3	127.28	1.34
Sprint 4	154.8	1.63
Sprint 5	141.04	1.5
Total Time	**670.08**	**7.09**